

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number  
**WO 2005/054340 A1**

(51) International Patent Classification<sup>7</sup>: **C08G 79/10**,  
77/02, C01B 33/26, C09K 21/14, C04B 28/00, C09D  
1/04, C09J 1/00

[AU/AU]; C/O - COMMONWEALTH SCIENTIFIC  
AND INDUSTRIAL RESEARCH ORGANISATION,  
Manufacturing and Infrastructure Technology, PO Box 56,  
Graham Road, Highett, VIC 3190 (AU).

(21) International Application Number:  
PCT/AU2004/001694

(74) Agents: **CURWEN, Julian, C. B.** et al.; Davies Collison  
Cave, 1 Nicholson Street, Melbourne, Victoria 3000 (AU).

(22) International Filing Date: 2 December 2004 (02.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2003906679 2 December 2003 (02.12.2003) AU

(81) Designated States (*unless otherwise indicated, for every  
kind of national protection available*): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(71) Applicant (*for all designated States except US*): **COM-  
MONWEALTH SCIENTIFIC AND INDUSTRIAL  
RESEARCH ORGANISATION** [AU/AU]; Limestone  
Avenue, Campbell, Australian Capital Territory 2602  
(AU).

(84) Designated States (*unless otherwise indicated, for every  
kind of regional protection available*): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SAGOE-  
CRENTSIL, Kwesi Kurentsir** [AU/AU]; C/O - COM-  
MONWEALTH SCIENTIFIC AND INDUSTRIAL  
RESEARCH ORGANISATION, Manufacturing and  
Infrastructure Technology, PO Box 56, Graham Road,  
Highett, VIC 3190 (AU). **WENG, Luqian** [CN/CN];  
CO - COLLEGE OF MATERIALS SCIENCE AND  
ENGINEERING, NANJING UNIVERSITY OF AERO-  
NAUTICS AND ASTRONAUTICS, 29 Yudao Street,  
Jiangshu, 210016 Nanjing (CN). **TAYLOR, Alan, Harry**

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: HYBRID INORGANIC POLYMER SYSTEMS

(57) Abstract: An inorganic polymer which comprises one or more organic functional groups and which has the following empirical formula:  $R_m[M_2O]_x[Al_2O_3]_y[SiO_2]_zX_q.PH_2O$ , in which: R represents an organic functional group; M is an alkali metal; X is selected from chlorine and fluorine; m is > 0; q is ≥ 0; x is from 1 to 1.6; y is from 1.0; x/y is from 1.0 to 1.6; z is from 3 to 65; z/y is ≥ 1.0; and P is from 3 to 5.



WO 2005/054340 A1